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ABSTRACT

The manual provides instructions for adapting the Special Fitness Test and the Special Fitness Test Award System for moderately retarded children. It is noted that major purposes of the test and award system are to motivate youngsters to participate actively in physical education and recreation activities and give them feelings of accomplishment and personal satisfaction. Presented are norms for moderately mentally retarded persons on standard test items (such as flexed arm hang, situps, standing long jump, and 50 yard dash) as well as additional activities appropriate for this population. The testing program and award system are explained, and directions for administering the tests are given. Included are copies of recording forms. (IM)

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MOTOR FITNESS TESTING MANUAL FOR THE MODERATELY MENTALLY RETARDED

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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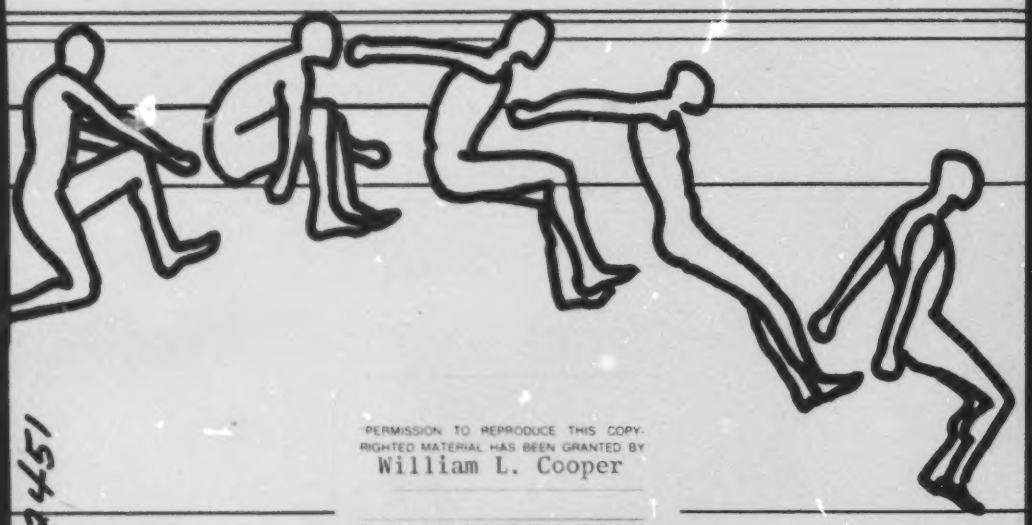
Ben Londeree



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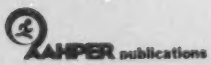

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People are the common denominator of progress.
John Galbraith

Professional commitment and dedication are given a great deal of lip service. This is not so with Ben Londeree and Leon Johnson, co-authors of this publication. They planned the test, conducted the research, wrote the manuscript, and then offered it as professional and personal contributions to the American Alliance for Health, Physical Education, and Recreation through the Unit on Programs for the Handicapped. After staff and field review of the manuscript, they willingly and unhesitatingly made recommended changes and additions, and arranged to have appropriate illustrations developed and processed. From the beginning Ben and Leon have been completely cooperative key members of the team responsible for this publication.

Specific recognition along with special thanks and appreciation are extended to Ben Londeree and Leon Johnson for their professional and personal contributions to the field. They saw and recognized a need and did something about it. Those who will benefit most from their concerns and efforts will be countless moderately mentally retarded boys and girls who will receive more individualized and relevant programs and opportunities as these test items are used in both formal and informal settings. It is to the end of greater independence and personal fulfillment for everyone that this publication is dedicated. Ben Londeree and Leon Johnson have brought this goal closer to realization for moderately mentally retarded persons. Gentlemen, we thank and applaud you for your efforts and willingness to share your talents with others.

George F. Anderson
Executive Director

FOREWORD

A teacher who makes little or no allowance for individual differences in the classroom is an individual who makes little or no difference in the lives of his students.

William A. Ward

Reports in the mid-1950s of low levels of physical fitness of American youth resulted in great emphasis on school and community physical fitness programs. Special efforts were initiated throughout the country to raise levels of fitness and improve health status of all Americans, especially school aged boys and girls. Through efforts of the American Association (now Alliance) for Health, Physical Education, and Recreation (AAHPER) the Youth Fitness Test was developed and used widely. This test was officially designated by the President's Council on Physical Fitness (now, and Sports) as basis for Presidential Fitness Awards.

During the early and mid-1960s increasing emphasis was placed upon physical education, recreation, and related vigorous activities for mentally retarded persons. Despite research evidence that indicated mentally retarded persons performed two to six years behind their age peers in physical fitness and motor proficiency activities, many who had opportunities to participate in planned, progressive, and sequential programs performed well in these activities. In fact, performances of some mildly (educable) mentally retarded students equalled or even surpassed performances of their normal age comparisons on events of the Youth Fitness Test. However, many retarded youngsters who had not been exposed to these activities could not compete equitably on the Youth Fitness Test.

Consequently, in 1968, AAHPER in cooperation with The Joseph P. Kennedy Jr. Foundation introduced the Special Fitness Test. The test itself was a modified version of the Youth Fitness Test, the norms of which were set by testing 4,200 mildly mentally retarded boys and girls 8 to 18 years of age. The Special Fitness Test program includes its own award system patterned after the Youth Fitness Test program. The two programs interlock so that an individual attaining the highest level (Champ Award) on the Special Fitness Test is at a level commensurate with the lowest level (Achievement Award) on the Youth Fitness Test.

From the outset people working with moderately (trainable) mentally retarded boys and girls noted problems and deficiencies in the Special Fitness Test for this population. While some moderately retarded indi-

viduals compete with events and norms established for mildly retarded children, the program has been inappropriate for many moderately retarded individuals. Through the years staff of AAHPER Unit on Programs for the Handicapped provided recommendations of ways to adapt the Special Fitness Test for those obviously unable to be successful and challenged in the program.

While no change of standards is permitted for the Champ Award, flexible standards may be established locally for Special Silver and Gold Awards. Major purposes of the test and award system are to motivate youngsters to participate actively in physical education and recreation activities and give them feelings of accomplishment and personal satisfaction. Important to attaining these goals is the personal challenge to achieve concrete goals that are meaningful to the participant. With these conditions and criteria as guidelines, some ways in which standards of the Special Fitness Test Award Program can be adapted so that they are more appropriate for segments of the moderately retarded population include:

- Use mental age rather than chronological age.
- Reduce the number of test items which must be passed.
- Use average percentile score rather than listed standards on five of seven items.
- Lower or raise percentile standards according to ability levels of individual participants.
- Eliminate test items which are obviously unfair so that each participant has a chance to succeed.
- Group activities into two or three categories according to fitness characteristics — running events, endurance activities, power items. Structure these so that individuals have to attain a minimum standard in so many items from each category.
- Use improvement in raw and/or percentile scores as basis for awards.
- Substitute activities and items requiring the same basic skills, traits, and characteristics for those listed on the test battery. For example, use a straight arm hang, straddle-chin, or straddle hang in place of flexed arm hang. Use improvement in raw score and/or develop local standard scores as criteria for awards.
- Use combinations of the above suggestions. For example, when using mental age instead of chronological age, percentile standards may have to be raised from those recommended to challenge youngsters.
- Develop original and creative approaches to challenge youngsters through these activities.

The key consideration is to make events, activities, and approaches challenging so each individual has a feeling of accomplishment and personal fulfillment when an award is received. Other motivational devices that have been successful in physical education and recreation programs for retarded participants include:

- Award ribbons in special events, tournaments, or competitive activities, including fitness activities.

- Place pictures in a Hall of Fame for outstanding performance or achievement — best scores on each of the test items, record performances, special accomplishments.
- List and display names for meeting certain standards of achievement — reaching given percentile levels on various test items; attaining specific times, distances, or heights in different activities; fulfilling specifically stated goals — running a predetermined distance (50 or 100 miles cumulatively); participating so many hours; taking part in so many events.
- Give certificates or cardboard crests for meeting certain standards of achievement or for fulfilling stated goals.
- Present cups or plaques for especially outstanding achievement or performance.
- Give tokens for specific purposes — a certain number of tokens can be turned in for a larger and more tangible award.
- Establish student assistant, junior leader, and similar leadership positions for individuals who attain certain standards or levels of achievement.

While these approaches have been used successfully by many physical education teachers, recreation specialists, special education teachers, camp counselors, volunteers, and others actively involved in these programs, requests for specific norms for moderately mentally retarded persons continue to be received. This manual meets these needs and provides norms along with additional activities that are appropriate for this population. While sample sizes for some age groups are small, norms for comparative purposes are now available. An award system developed in terms of moderately mentally retarded boys and girls is an integral part of this program. Because of the highly motivational nature of both test items and award system, the ultimate purpose of this program is to motivate, interest, and challenge these youngsters to participate actively in a variety of vigorous physical activities. With added zeal they will feel better, be healthier, and be capable of living fuller, more fulfilling lives. Increased opportunities will be possible through a variety of recreational and sport activities. New and unlimited horizons will be possible.

It is both interesting and ironic that patterns and trends prevalent with mildly mentally retarded children 10 to 15 years ago are characteristic of report findings and feelings about moderately mentally retarded today. Many categorical generalizations about low levels of physical fitness, poor motor development, and inadequate physical prowess and motor proficiency of mildly retarded persons have been shown to be greatly exaggerated. As moderately mentally retarded youngsters have new, increased, and appropriate sequential programs developed in terms of their unique needs, progress of the same type noted in mildly retarded individuals has been observed. Will the cycle repeat in 10 to 15 years as greater emphasis is placed on meeting needs of severely and profoundly mentally retarded persons? To what degree are many of the problems confronting mentally retarded persons of all levels institutionally and culturally created? Only time will tell. This Motor Fitness Test is another step forward in the overall process of progress. Greater

objectivity can be assured in assessing individual participant progress and staff accountability in programs and activities for which this instrument is appropriate.

Julian U. Stein
Consultant, Programs
for the Handicapped

INTRODUCTION TO THE TESTING PROGRAM

Purposes of the Testing Program

Evaluation of progress of students toward program objectives is an integral part of successful teaching. In physical education many tests have been developed for the evaluation of normal children. A notable example is the *AAHPER Youth Fitness Test Manual* which was first published in 1958. The Test consisted of a seven item battery — pullups for boys or flexed arm hang for girls, straight leg situps, shuttle run, standing long jump, softball throw for distance, 50 yard dash, and 600 yard run-walk — with national norms by sex, age, and maturity levels. In addition, an award system was included to provide motivational impetus. As a result of increased emphasis, youth physical fitness improved and led to an upward revision of the norms in 1965. In 1975 the Youth Fitness Test was streamlined by dropping the softball throw for distance; the straight leg situp was replaced by the flexed leg situp done for one minute; and flexibility was permitted for cardiorespiratory endurance through use of several alternatives to the 600 yard run-walk.

The desire for a modified version for mildly (educable) mentally retarded children (IQ 50 to 70)[1] resulted in publication of the *Special Fitness Test Manual for the Mentally Retarded* by AAHPER and the Joseph P. Kennedy Jr. Foundation in 1968. The Special Fitness Test was similar to the Youth Fitness Test except for three substitutions: flexed arm hang for time for both boys and girls, situps in one minute instead of maximums of 100 for boys and 50 for girls, and the 300 yard run-walk instead of the 600 yard run-walk. National norms based on sex and age were included in the *Special Fitness Test Manual*. In addition, an award system to parallel the one utilized in the Youth Fitness Program was developed for mildly mentally retarded individuals 8 to 18 years of age.

Purposes of the testing and award program presented in this manual are modified from those listed in the *Special Fitness Test Manual for the Mentally Retarded*:

- Provide teachers, supervisors, and parents with tests and norms for assessing physical fitness levels of moderately mentally retarded children.
- Determine progress of each child.
- Serve as diagnosis for strengths and weaknesses of each child.
- Provide an incentive for moderately retarded children to improve their levels of motor fitness.

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[1]As defined by the American Association on Mental Deficiency (AAMD), mental retardation refers to subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior. An individual may meet criteria of mental retardation at one time and not at another because of changes in social standards or conditions or as a result of changes in efficiency of intellectual functioning. Level of efficiency is always determined in relation to behavioral standards and norms for an individual's chronological age group. In general:

- *Mildly or educable mentally retarded children* have IQs between 50 and 75, capacity to acquire basic academic skills, moderate degree of social adjustment, and satisfactory ability for self support.
- *Moderately or trainable mentally retarded children* have IQs between 30 and 50, acquire basic skills of self care, social adjustment to the home and neighborhood, oral communication, and a degree of economic usefulness in sheltered situations.

Several court decisions have rendered as false, the educational dichotomy between education and training.

- Provide a stimulus to teachers of moderately retarded children to improve physical education and recreation programs for these children.

Development of the Test and Norms

Results reported in this manual represent a culmination of two years of motor fitness testing in State Schools for Retarded Children located throughout Missouri. The project was sponsored by the State Schools which are a division of the State Department of Public Instruction. All moderately mentally retarded children who were cleared for physical education activities were tested on two occasions during each of the 1971-72 and 1972-73 school years. Items were modified considerably after the 1971-72 year and slightly after the first series in the fall of 1972. The present data were collected during the spring of 1973 on 1,097 students ranging from 6 to 21 years of age.

Tests were administered by the regular physical education instructors at each school. Workshops were held at the University of Missouri-Columbia prior to both of the 1972-73 administrations. Discussions of and practice with test items during the workshops served to standardize procedures among teachers.

Some students did not attempt all test items for various reasons. It was assumed that missing cases represented inability to perform the item and therefore these data were not included in calculations in normative tables. Unsuccessful attempts were scored as zeroes and entered into analyses.

Interpretation of the Test Norms

Determination of percentile rank of a particular score requires four steps:

1. Locate the proper table
2. Locate the proper age column
3. Locate the score, or next poorer score shown, in the proper age column
4. Read horizontally to the left to find the equivalent percentile rank. If the score value is not shown on the chart, use the percentile corresponding to the next poorer score that is shown.

Percentiles in the tables represent cumulative percents. For example: if a score of 20 is at the 30th cumulative percent, it means that 30 percent of the scores were 20 or worse. In most cases larger scores are better; exceptions include the 300 yard run-walk and the 50 yard dash.

It is obvious that gaps exist between raw scores in some percentile tables, i.e., in hopping for 15 year old males, three represents the 20th percentile and six the 100th percentile with no percentile equivalents for raw scores of four and five. This occurred due to the fact that none of the sampled population actually attained missing raw scores. To make accurate comparisons to the sample population, no interpolations should be made to fill in the gaps.

The number of students involved in making calculations is shown at the bottom of each column on the tables. None of the numbers is large and this should temper judgments and comparisons; this is particularly true for the youngest and oldest groups. On the other hand, these norms represent a pioneering effort and should be viewed as a springboard to greater understanding of motor fitness characteristics and abilities of moderately mentally retarded children.

Characteristics of a Good Test

A number of characteristics should be considered when selecting a test including validity, reliability, objectivity, difficulty level, distribution of test scores, standardized procedures, administrative feasibility, teaching utility, and availability of appropriate norms. Since there is little agreement in the profession regarding components of physical and/or motor fitness, there is no way to determine *validity* of a battery of items purporting to measure various aspects of fitness. However, items in the present test series are commonly used in published tests as indicators of muscular strength, power, and endurance; circulorespiratory endurance; flexibility; weight control; speed; and developmental skill. An indirect indication of validity is a general improvement in test scores with age. Typically normal girls peak out about puberty, while normal boys continue to improve with age. Moderately mentally retarded girls in Missouri tended to continue to improve to an older age than normal girls (perhaps related to a later puberty?). Moderately mentally retarded boys in Missouri tended to peak out at about age 16 and then declined thereafter. This decline may have been due to the fact that older students were involved in a sheltered workshop program and did not receive formal physical education instruction. One test was not age related — bob and reach scores showed little change with increasing age. In addition, tumbling tended to peak out at an earlier age than other items.

No attempt was made to measure *reliability per se* during the present project. However, correlations between fall 1972 and spring 1973 data were r = .80 or above on eight of twelve items — the 300 yard run-walk was not administered in the fall. These results are surprisingly high when considering the intervening six months. Of the exceptions, the flexed arm hang and bob and reach tests have been reported to have test-retest reliabilities as high as r = .90. In the present series fall to spring correlations for the target throw were r = .60s and for skipping and tumbling were r = .70s. Probably the target throw should include more trials to increase reliability. Perhaps reliabilities for all three of these tests were victims of the six months between trials. No information was found regarding reliability of the 300 yard run-walk.

Objectivity is reported in the literature for only a few motor tests; generally correlations between scorers were quite high. If standardized procedures are followed closely, objectivity should be satisfactory for all items in the present test battery.

Ideally, the *range of test scores* should be relatively large to permit differentiation among levels of ability. By looking at percentile norm

tables it is apparent when a test is either too difficult or too easy. If a test is too difficult the norm table will have blank regions for lower percentiles. This means that many students had about the same very low raw score. This is clearly illustrated in the bent arm hang.

Another interpretation could be that children in this group had very low arm and shoulder strength and/or endurance. Other tests demonstrating this phenomenon to a lesser degree include situps for younger and older students, target throw for girls and young boys, hopping for younger students, and skipping. Conversely, a test which is too easy will have a significant number of students obtaining the highest possible raw score, resulting in gaps on norm tables for higher percentiles. Items demonstrating this phenomenon are hopping and skipping, particularly, and target throw and tumbling to a lesser extent. All of these items have one factor in common -- they are developmental or skill oriented. Since hopping, skipping, and the target throw were too easy for some students and too hard for other students, these tests suffer from narrow ranges and suggest need for further research.

Distribution of test scores for each age level should approximate the normal curve. Therefore, most scores should be in the middle of the range. Such a distribution would have small differences in test scores among central percentiles. Conversely, relatively large differences should exist for test scores among extreme percentiles. Naturally tests which are too easy or too difficult for a particular age group would violate this principle.

Procedures for all items in the present test series were *standardized*. These procedures evolved through refinement with use and appeared satisfactory for moderately mentally retarded children. A teacher/leader may desire to modify procedures for a particular test item to satisfy unique local needs. In some cases such modifications are justifiable. However, the teacher/leader must realize that any change in testing procedures may invalidate comparisons with norms presented in this manual. Demonstration of each event to insure student understanding is important for valid results since motivation influences level of performance in physical and motor activities. Every effort must be made to interest students in what they are doing.

Administrative feasibility of tests refers to cost in time, equipment, and facilities. Individually each of the present test items is feasible. However, collectively tests require too much time. Therefore an instructor should select only those items which fulfill the needs best. Based on the composition of physical fitness batteries reported in the literature for use with other groups of children, it is suggested that the following items would provide comparable information: flexed arm hang, situps in 30 seconds, softball throw for distance, standing long jump, 50 yard dash, and 300 yard run-walk.

Teaching utility refers to the desirability of having a test situation resemble a game situation. Interaction between performers or between performer and test administrator produces inconsistent test conditions and should be avoided. Items in the present series represent a compromise between these somewhat incompatible factors.

The fact that motor fitness norms for moderately mentally retarded persons are considerably lower than for normal and mildly mentally

retarded children supports the contention that appropriate norms should be used when evaluating test results. The present norms also suggest that physical education programs for moderately mentally retarded participants might benefit from greater emphasis upon motor fitness. However, the reader is cautioned about the localized nature of the sampled population utilized for these norms, i.e., throughout Missouri.

Final Suggestions

This manual presents comprehensive motor fitness normative data for use with moderately mentally retarded persons. Therefore it should serve a valuable role to physical education instructors working with this population. On the other hand, this introduction has identified shortcomings in some of the test items which should stimulate additional research. Knowledge of these weaknesses should alert teachers/leaders to the danger of relying too heavily upon these test norms.

AWARD SYSTEM

AAHPER and Kennedy Awards

The award system presented in the *Special Fitness Test Manual for the Mentally Retarded* has been adapted for use with moderately mentally retarded children. Standards are based on norm tables found in the present manual. Since the number of cases at each age was not large the norm tables show rather erratic changes with age on fitness variables. It was assumed that these fluctuations were a result of sampling errors; therefore curves were smoothed before establishing standards for each award. Awards are in the form of embroidered emblems and/or certificates.

AAHPER Special Silver Award is for children who have attained standards (smoothed 50th percentile) for their sex and age on five of six items of the suggested battery shown on page 9.

AAHPER Special Gold Award is for children who have attained standards (smoothed 75th percentile) for their sex and age on five of six items of the suggested battery shown on page 10.

Kennedy Foundation CHAMP Award is the highest award given to mentally retarded children who have attained a very high level of physical fitness. To be eligible to receive this award children must have attained standards (smoothed 85th percentile) on all six items of the suggested battery shown on page 11. The CHAMP Award is administered by the Joseph P. Kennedy Jr. Foundation. Applications for the CHAMP Award may be obtained directly from the Kennedy Foundation, 1701 K Street, N.W., Washington, D.C. 20006. The emblem for this award is provided at no cost by the Foundation to those who qualify.

AAHPER Progress Award is a certificate which can be given to mentally retarded children who have participated in the testing program and demonstrated improved performance. Flexible standards may be established locally.

Motivational materials discussed above are available from AAHPER as follows:

Special Fitness Record Form		(242-07908) 11¢ each
Special Gold Emblem		(242-07912) 45¢ each
Special Silver Emblem		(242-07910) 45¢ each
Auxiliary Bar Patches —	2 Star	(242-06824) 25¢ each
	3 Star	(242-06826) 25¢ each
	4 Star	(242-06828) 25¢ each
Progress Certificate		(242-06802) 8¢ each

A basic purpose of any physical fitness program is to encourage participation in fitness and recreational activities outside of school physical education, community recreation, or camp programs. Two specific programs designed to capitalize on and promote fitness concepts are:

- *Families Play to Grow* (The Joseph P. Kennedy Jr. Foundation, 1701 K Street, N.W., Washington, D.C. 20006). This program is designed so that special children of any age can enjoy a regular program of play, recreation, and sports with their families, classmates, and friends. Kits can be obtained from the Kennedy Foundation that include *The Family Play Manual, Family Play Calendar, "I'm a Winner"* chart and ten *Family Play Guides* to favorite activities such as

hiking, bicycling, nature walking, running, bowling, movement/rhythm/dance, volleyball, kickball, and aquatics.

- *Presidential Sports Awards* (P.O. Box 129, Radio City Station, New York, New York 10019) has been developed by the President's Council on Physical Fitness and Sports. Standards are designed to encourage regularity of participation and an investment of time and effort conducive to physical fitness for those 15 years of age and older. Participation standards and awards are available in 39 ac-

STANDARDS FOR AAHPER SILVER AWARD

(Qualify by achieving the standard on any five test items)

Age	Flexed Arm Hang (sec.)	Sit-ups (no.)	Standing Long Jump (in.)	Softball Throw (ft.)	50 Yard Dash (sec.)	300-Yard Run-Walk (sec.)
			GIRLS			
6	1.0	1	10	9	18.2	155
7	1.0	1	11	10	17.8	150
8	1.0	1	13	11	17.0	145
9	1.0	2	17	13	15.9	138
10	1.0	3	22	20	14.8	129
11	1.0	4	24	25	13.5	125
12	1.0	5	25	26	13.2	120
13	1.0	6	26	28	13.0	119
14	1.0	7	27	31	13.0	119
15	1.0	7	27	32	12.3	120
16	1.0	8	28	29	12.3	119
17	1.0	7	28	29	12.4	114
18	1.0	7	28	31	12.8	111
19	1.0	6	28	31	13.4	125
			BOYS			
6	1.0	1	10	11	16.6	150
7	1.0	2	14	14	15.4	147
8	1.0	4	18	16	14.3	144
9	1.0	5	22	21	13.4	139
10	1.0	6	25	28	13.1	127
11	1.0	7	29	34	12.7	117
12	1.0	8	33	43	11.2	114
13	1.0	9	36	50	10.9	111
14	1.0	10	39	57	10.7	102
15	2.0	11	44	65	10.2	91
16	1.5	11	40	59	10.1	90
17	1.3	10	39	58	10.2	90
18	1.2	9	37	53	10.3	100
19	1.0	7	36	38	11.7	105

tivities. Representative of the variety of activities in which moderately mentally retarded persons have successfully participated are: swimming, ice skating, roller skating, bicycle riding, gymnastics, hiking, climbing, sailing, canoeing, basketball, exercise routines, jogging, tennis, badminton, wrestling, soccer, skiing, weight training, touch football, horseback riding, and overnight camping.

STANDARDS FOR AAHPER GOLD AWARD

(Qualify by achieving the standard on any five test items)

Age	Flexed Arm Hang (sec.)	Sit-ups (no.)	Standing Long Jump (in.)	Softball Throw (ft.)	50 Yard Dash (sec.)	300-Yard Run-Walk (sec.)
			GIRLS			
6	1.0	1	13	14	16.0	147
7	1.0	2	15	16	15.0	134
8	1.0	4	21	18	14.0	125
9	1.0	7	26	20	13.0	120
10	1.0	9	29	25	12.0	115
11	1.0	10	33	29	11.3	110
12	1.3	11	35	34	11.1	100
13	1.3	11	37	40	11.1	98
14	1.3	11	37	44	11.0	98
15	1.4	11	37	46	10.9	95
16	1.4	11	37	47	10.9	95
17	1.4	10	36	48	11.0	95
18	1.0	10	36	48	11.6	98
19	1.0	9	36	40	12.1	112
			BOYS			
6	1.0	1	15	20	14.1	139
7	1.0	5	20	22	13.5	132
8	1.0	8	24	26	12.8	125
9	1.0	9	30	34	11.6	114
10	1.0	10	34	40	11.1	95
11	1.6	10	38	45	10.8	91
12	3.0	11	43	55	10.5	87
13	3.6	12	47	63	10.1	82
14	4.0	13	51	70	9.6	79
15	9.0	14	56	83	9.1	72
16	8.5	13	54	92	8.8	73
17	8.0	12	51	85	9.0	75
18	6.0	11	47	85	9.0	85
19	4.0	10	45	85	9.5	100

STANDARDS FOR KENNEDY FOUNDATION CHAMP AWARD

(Qualify by achieving the standard on all six test items)

Age	Flexed Arm Hang (sec.)	Sit-ups (no.)	Standing Long Jump (in.)	Softball Throw (ft.)	50 Yard Dash (sec.)	300-Yard Run-Walk (sec.)
			GIRLS			
6	1.0	1	19	14	16.0	140
7	1.0	5	21	20	14.5	129
8	1.0	7	26	24	13.3	119
9	1.0	9	31	27	12.1	110
10	1.0	11	34	32	11.1	100
11	1.8	12	36	37	10.5	95
12	2.4	12	40	45	10.4	91
13	3.0	12	44	47	10.4	87
14	3.0	12	43	50	10.5	89
15	3.0	12	40	50	10.3	90
16	3.0	12	40	51	10.2	90
17	3.0	12	40	52	10.2	90
18	3.0	12	40	52	10.3	95
19	3.0	10	39	47	11.4	105
			BOYS			
6	1.2	5	16	23	13.2	130
7	1.5	7	25	25	12.4	123
8	2.0	10	30	30	11.8	111
9	3.0	11	35	38	10.9	108
10	3.8	13	40	42	10.1	85
11	4.1	13	46	50	9.7	79
12	4.6	13	51	65	9.3	77
13	8.0	14	55	73	9.0	75
14	9.0	15	57	80	8.5	73
15	10.0	17	61	90	8.0	67
16	10.0	16	60	100	8.0	63
17	10.5	14	55	90	8.0	71
18	11.0	13	51	90	8.0	80
19	8.0	12	50	90	8.5	82

DIRECTIONS FOR ADMINISTERING THE TESTS

General Administrative Procedures

It is suggested that a battery of six items — flexed arm hang, situps, standing long jump, softball throw for distance, 50 yard dash, and 300 yard run-walk — will provide a satisfactory physical fitness profile of moderately retarded children. Other items are included in this manual to permit comparisons as needed in local situations. Directions for individual tests appear on the following pages.

The suggested battery of items requires little in the way of specialized equipment and facilities. The softball throw for distance and 50 yard dash should be administered outdoors; other tests can be given inside or outside.

Use of space and time should be planned carefully to ensure efficiency. Arrangements should be made for obtaining and training timers and scorers. With adequate trained help a squad method of test organization will reduce total testing time the most without sacrificing accuracy. Suggested recording forms are shown on pages 35-37. A dress rehearsal of administrative procedures is a wise investment of time both from the standpoint of efficiency and validity of test results.

If time permits, all six test items can be administered during one session by rotating squads among the four stations that do not involve running followed by the 50 yard dash and then the 300 yard run-walk. An alternative approach consists of giving the flexed arm hang, situps, and long jump tests on one day with other tests administered on a second day. Each test item should be administered exactly according to directions. Failure to do this may make comparisons with norms invalid.

Make sure that each student is familiar with the test item before testing. A demonstration of the proper procedures is beneficial. The purpose is to measure physical performance, not understanding of the test. If a student obviously has misunderstood directions, he should be given another trial. Students should be warmed up before taking tests. The test should not be given to any student whose medical status is questionable.

1. Flexed Arm Hang

EQUIPMENT

A metal or wooden bar approximately 1½ inches in diameter is preferred. A doorway gym bar, a piece of pipe, or an angled or horizontal ladder can be substituted. A stopwatch is needed also.

DESCRIPTION

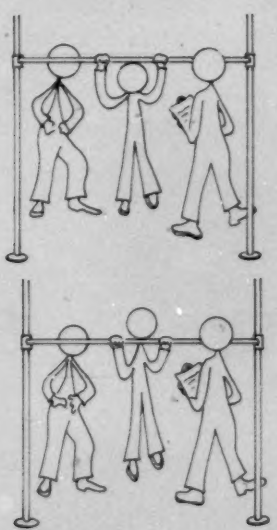
The bar should be adjusted to approximately standing height. The student grabs the bar with an overhand grip (palms facing away from the body) and with the aid of a spotter (who lifts at the waist) jumps to the flexed arm position. Proper position is one in which the chin is level and above the bar; elbows are close to the sides, and the chest is close to the bar. Object of the test is to hold the proper position as long as possible.

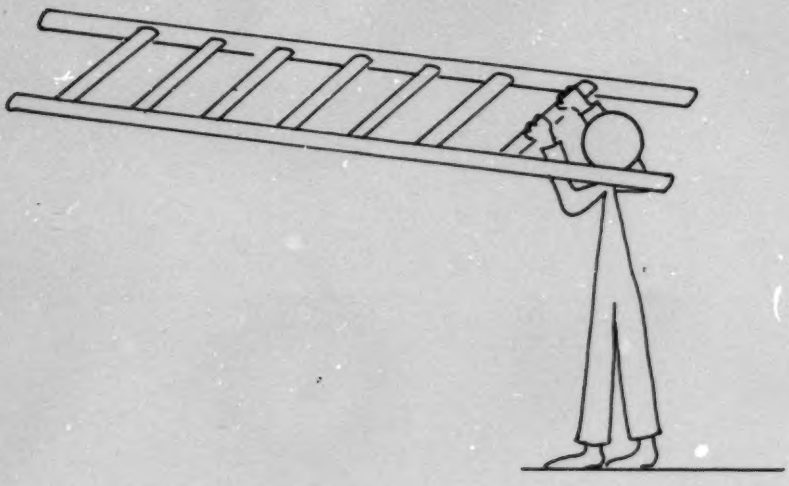
RULES

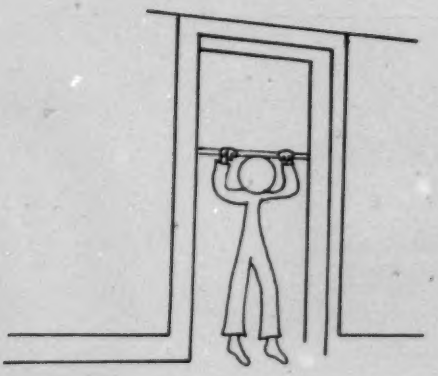
1. The stopwatch is started as soon as the student assumes the proper position and the spotter relinquishes his help.
2. The stopwatch is stopped when a) the chin touches the bar, b) the head tilts back to keep the chin above the bar, or c) the chin drops below the top of the bar.
3. No kicking, swinging, or raising of knees is permitted.
4. One trial is permitted.

SCORING

Record to the nearest tenth of a second the time the subject holds the proper position.







2. Situps In Thirty Seconds

EQUIPMENT

Tumbling mat and stopwatch

DESCRIPTION

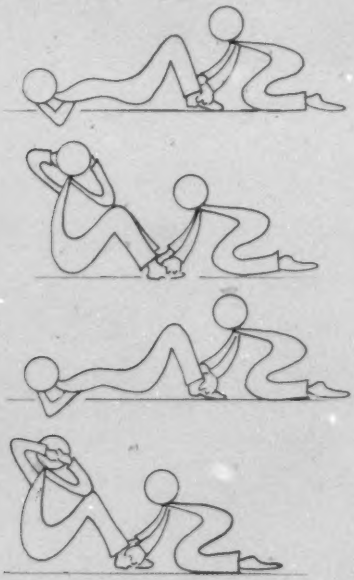
The student lies on back on the mat with knees flexed to less than 90 degrees, feet on the mat, and heels not more than 12 inches from the buttocks. Hands are placed behind neck with fingers interlaced; elbows should be resting on the mat. A partner holds the feet so that they remain in contact with the mat. On the command *GO* the student should curl up into a situp position and touch one elbow to the opposite knee, recline, repeat the situp, and touch the other elbow and knee, continuing in this alternating manner until the command *STOP*. The purpose is to perform as many situps as possible in 30 seconds.

RULES

1. Do not count the situp if a) the student does not start from a completely reclined position with elbows on the mat, b) the student does not touch an elbow to the opposite knee, or c) fingers do not remain clasped behind the neck.
2. Only one trial is permitted.

SCORING

The score is the number of times in 30 seconds one of the student's elbows touches the opposite knee correctly.



3. Standing Long Jump

EQUIPMENT

Floor or a paved outdoor surface

DESCRIPTION

Mark an open area on the floor with a restraining line and lines parallel to the restraining line every inch starting at 12 inches and continuing through 120 inches; modify for young or old groups. The lines should be about 30 inches long and distances should be clearly marked. Lines can be made with a felt tip pen for temporary use or with paint protected with sealer for permanent use. An alternate setup is to tape a tape measure on the floor perpendicular to the restraining line. The student should stand with toes just behind the restraining line and with feet several inches apart. Any preliminary motions desired may be made as long as feet are not moved. Generally the best procedure is to dip the body by bending the knees as the arms swing forward; repeat several times. As a student swings through for the actual jump, the arm swing should be quite forceful and the body should lean forward as the body dips so that the force of the jump will be forward. The jump is made with both feet leaving the floor at the same time and landing at the same time.

Both research and experience indicate that many youngsters do not attain best efforts in three standing long jump attempts. To have greater confidence in results as true indicators of an individual's ability in this event, the following procedures should be considered:

Determine when each youngster obtains best jump. The number of jumps in testing does not permit most jumpers to achieve their best performances — they must work up to best jumps through all out practice jumps; determine this as follows:

- Take 20-25 all out jumps after thorough warmup
- Record, chart, or graph each jump in terms of actual length or how much each jump increases or decreases compared with first effort — note pattern and when best jump occurs.
- Repeat this procedure several times — never more than once a week — until pattern is established whereby best jump occurs within one or two jumps.
- Plan pre-test practice so best jump occurs on second of three test jumps for example, if a youngster's best jump occurs on the 12th effort, take 10 all out practice jumps before first test jump; in this way the 12th all out effort is the second in competition.

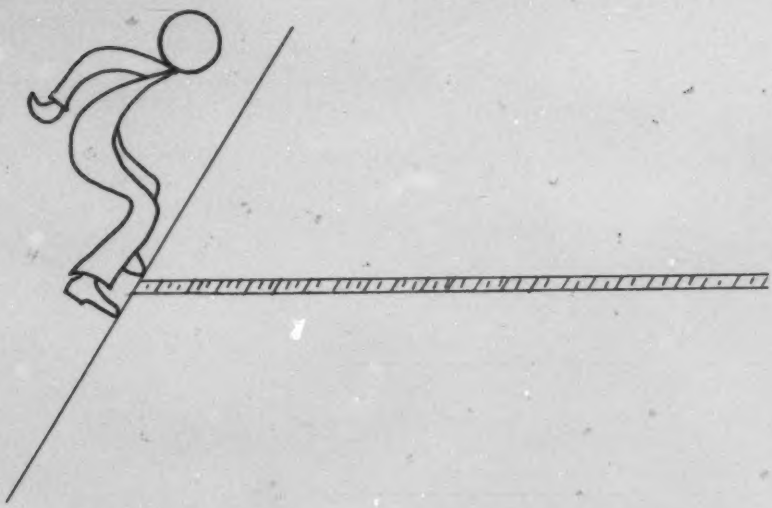
RULES

1. Both feet must leave the floor at the same time.
2. Both feet must land on the floor at the same time.
3. Measure the perpendicular distance from the restraining line to the heel or other body part that touches the floor nearest takeoff line. Be sure to note carefully the point where heels first contact the floor because there is a tendency for the feet to slide forward.

4. Do not count a jump if the student moves feet just prior to jumping.
5. Best of three trials is scored.

SCORING

Record the best of three trials to the nearest inch.



4. Softball Throw for Distance

EQUIPMENT

An open field approximately 50 feet wide and 250 feet long, a minimum of three softballs (12-inch) in good condition, and agricultural lime.

DESCRIPTION

At one end of a field make a restraining line with lime. Starting 15 feet from and parallel to the restraining line, mark lines at five feet intervals through about 225 feet — less for younger and more for older students. Lines at multiples of 10 feet should be longer with distance clearly marked. Permit students to play catch briefly to loosen their arms and shoulders. Have the student throw (overhand) three times in succession. After the first throw quickly mark the distance to the nearest foot by sighting parallel to the distance lines. Indicate distance to the student and have him or her make the next throw. If it is a better throw repeat the previous process — if not, remain at the first mark for the final throw. Use about two students to retrieve balls after they hit the ground.

Both research and experience indicate that many youngsters do not attain best efforts in three softball throws for distance attempts. To have greater confidence in results being true indicators of an individual's ability in this event, the following procedures should be considered:

Under no circumstances — practice, testing, or competition — should a youngster throw hard or far before warming up thoroughly. Include a sufficient number of form throws at increasing distances in preparation for all out throws in practice, testing, or competition. Determine when each youngster obtains best throw. The number of throws in testing does not permit most throwers to achieve their best performances — they must work up to best throws through all out practice throws; determine this as follows:

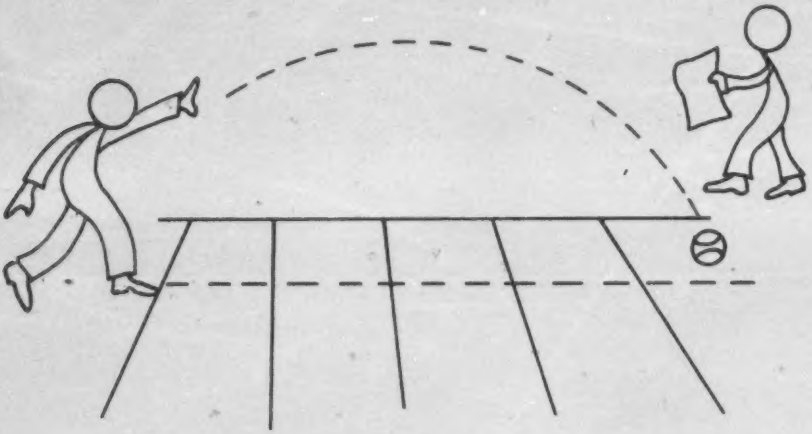
- Take 20-25 all out throws
- Record, chart, or graph each throw in terms of actual distance or how much each throw increases or decreases compared with first effort — note pattern and when best throw occurs.
- Repeat this procedure several times — never more than once a week — until a pattern is established whereby best throw occurs within one or two throws.
- Plan pretest practice so best throw occurs on second of three test throws. For example, if a youngster's best throw occurs on the 16th effort, take 14 all out practice throws before first test throw; in this way the 16th all out effort is the second in testing.

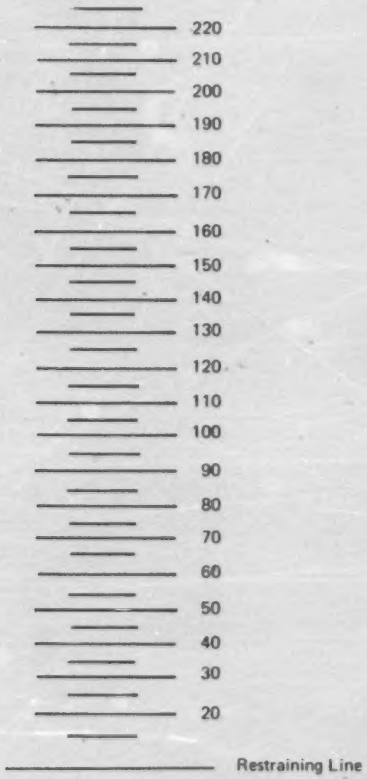
RULES

1. Only an overhand throw may be used.
2. Student may make any approach wished but must not cross the restraining line; have other students watch for fouls.
3. Only three trials are permitted.

SCORING

Record best of three throws in feet. Score is perpendicular distance from the restraining line to landing point.





5. 50-Yard Dash

EQUIPMENT

An appropriate measured distance on a smooth, relatively solid surface and preferably two stopwatches.

DESCRIPTION

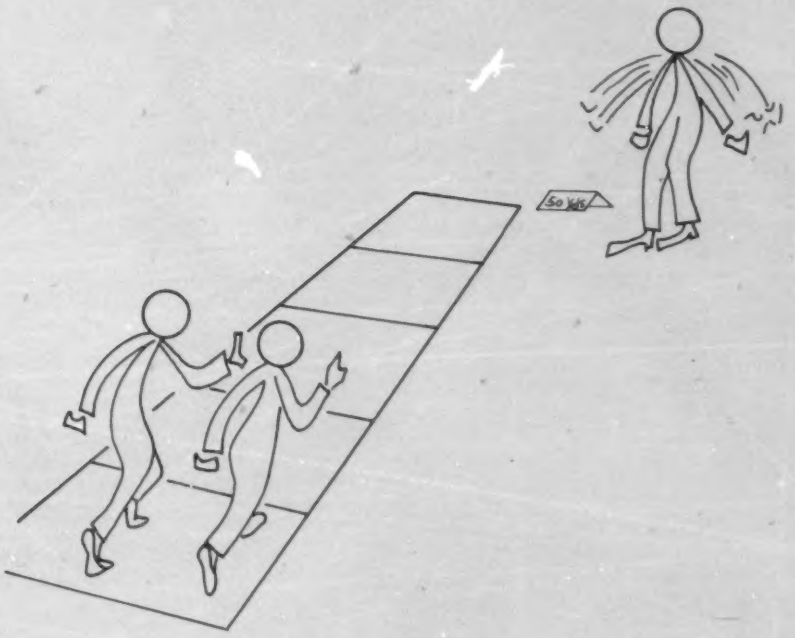
Two students take standing positions behind the starting line. When both runners are ready indicate the *SET* position (from the finish line) by raising your arms sideways with a watch in each hand. The *GO* signal is made by briskly bringing the arms down and starting watches at the same time. Stop each watch as the respective runner first contacts the imaginary plane extending above the finish line with the body — i.e., not head or arms.

RULES

1. Score is elapsed time between the *GO* signal and instant the student crosses the finish line.
2. Only one trial is permitted.

SCORING

Record elapsed time to nearest tenth of a second.



6. 300 Yard Run-Walk

EQUIPMENT

A track, paved area, or reasonably solid and smooth surface on which an appropriate course can be marked and a stopwatch.

DESCRIPTION

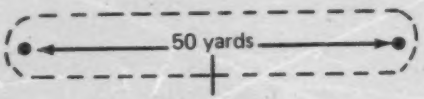
Have five to ten students run at a time. They should use a standing start in a single row behind the starting line. On the signal, *READY–GO*, the students run the 300 yard distance as quickly as possible. It is permissible to walk some if necessary. The timer reads times aloud as each runner finishes while a recorder marks times. Another helper identifies students as each crosses the finish line. In an alternative approach depending upon ages, students pair off before the event. Only one member of a pair runs at a time and the second member of the pair listens for the partner's time.

RULES

Walking is permitted but should be kept to a minimum since the purpose is to finish in the shortest possible time.

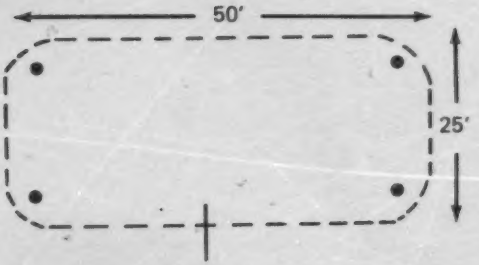
SCORING

Record the elapsed time in seconds.



Start and
Finish

Outdoors: 3 Laps



Start and
Finish

Indoors: 6 Laps

7. Height

EQUIPMENT

Tape measure, a straight wall, and a small piece of wood with one square corner.

DESCRIPTION

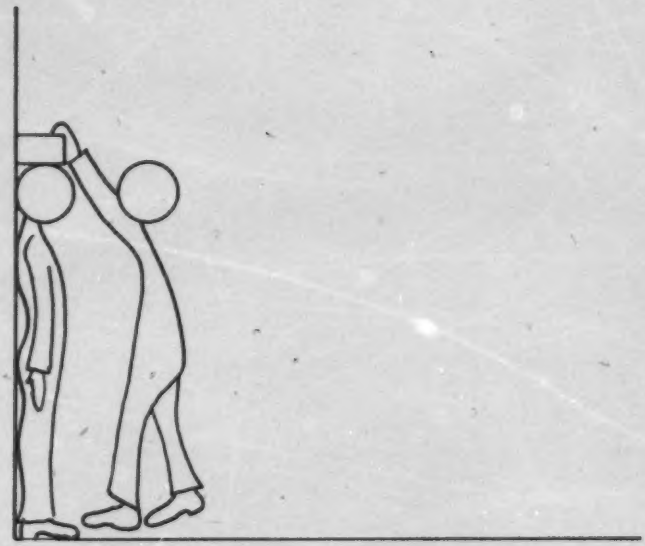
Attach a tape measure vertically upon a wall. Have the student remove shoes and stand erect with back against the wall. Heels, calves, buttocks, shoulder blades, and head should be against wall. Align head so that student is looking straight ahead. Then place the square piece of wood against the wall above head and gently lower block until it just touches student's head. Then take reading to nearest one-quarter inch.

RULES

1. Have students remove their shoes.
2. Student should stand erect with heels, calves, buttocks, shoulder blades, and head against the wall. Student's head should be aligned straight ahead.

SCORING

Record height to nearest one-quarter inch in inches.



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8. Weight

EQUIPMENT

A set of accurate scales.

DESCRIPTION

Have student remove shoes and any excessive clothing or heavy objects from pockets. Then have student step squarely onto scales and take a reading to nearest pound.

RULES

Remove shoes and other excessively heavy articles.

SCORING

Record weight to nearest pound.

9. Sitting Bob and Reach

EQUIPMENT

Bob and reach apparatus which consists of a wooden box with a measuring stick extending about 12 inches above and below the top of the box and marked in ± one-half increments with zero even with the top of the box. Plus values are placed below the top of the box.

DESCRIPTION

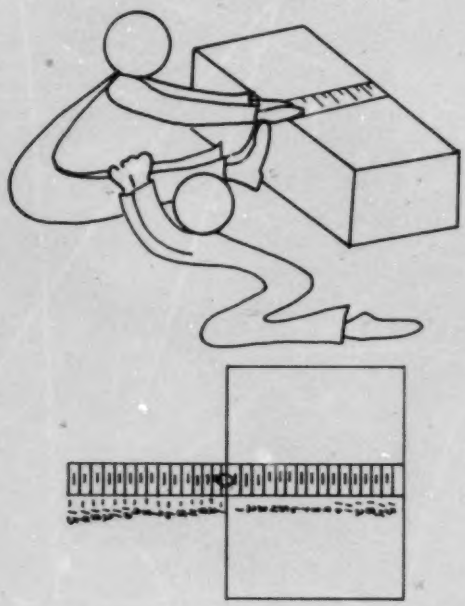
Have the student remove shoes and lie down on back with feet against the box. Hold knees on the floor. Then the student sits up and reaches as far as possible along the measuring stick with both hands. Thumb of one hand should be grasped by the second hand to ensure that both hands extend equally far. Student should bounce three times and then maintain reach for three seconds while reading is taken.

RULES

1. Student's hands must extend equally far.
2. Student may not touch apparatus with hands.
3. Reach position must be held for three seconds.
4. Student may loosen-up before attempting the test.
5. Only one trial is permitted.

SCORING

Record score to the nearest one-half inch. Be sure to include appropriate sign.



10. Hopping

EQUIPMENT

A small open floor area.

DESCRIPTION

The student should hop on one foot as many times in succession as possible to a maximum of three hops. This should be done first on one foot and then the other.

RULES

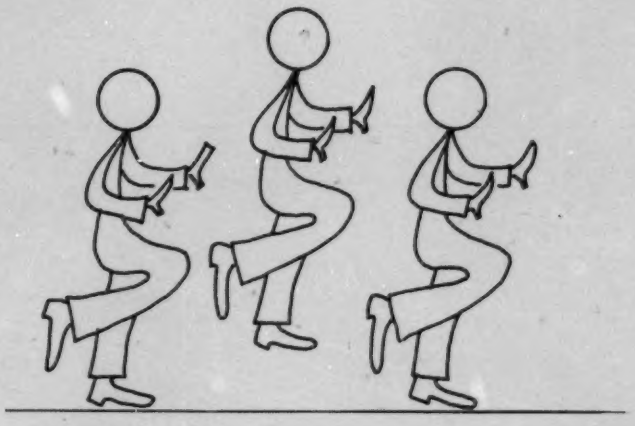
1. Hops on one foot should be in succession without hesitation.
2. Hops should be performed on each foot.
3. Student may have three trials on each foot.

SCORING

Each series of hops is scored in the following manner:

- Unable to jump off the floor on one foot and land on the same foot 0
- Able to hop once 1
- Able to hop twice in succession 2
- Able to hop three times in succession 3

Score is the sum of the best trial with each foot.



11. Skipping

EQUIPMENT

A small open floor area.

DESCRIPTION

Skipping is a series of step-hop movements alternating feet following each hop. Student should perform a series of at least three consecutive skips.

RULES

Student may have three trials.

SCORING

Each series of skipping is scored as follows:

- Unable to take a step and hop 0
- Able to take one step and hop 1
- Able to take three step and hops on alternate feet 2
- As above but well-coordinated skipping 3

Best trial is recorded.

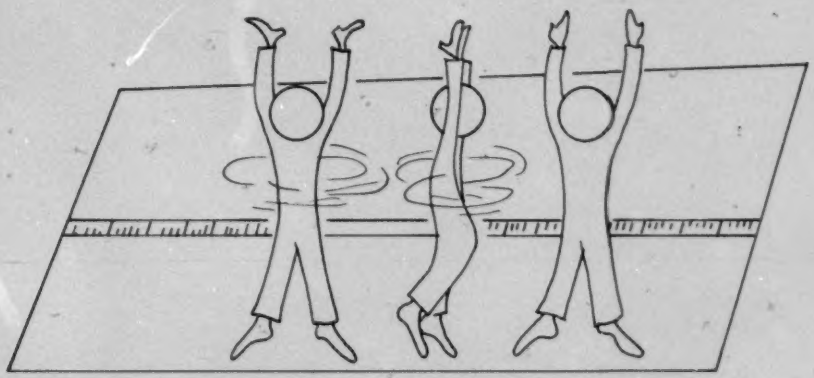
12. Tumbling Progression

EQUIPMENT

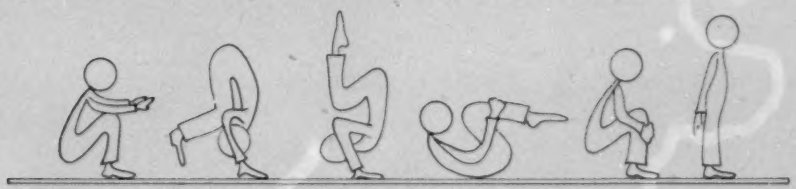
Tumbling mat with a piece of tape down the center.

DESCRIPTION

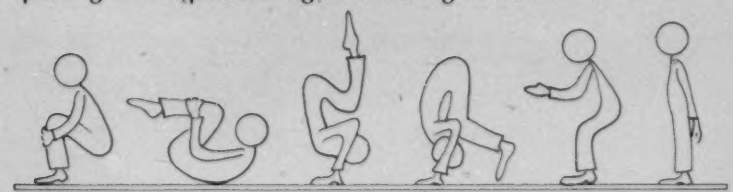
The student should demonstrate the log roll (four consecutive rolls), forward roll, and backward roll. In the log roll arms should be extended overhead and waistline should be on the centerline of the mat. In the forward roll start from a squat position. During the start of



the roll weight should be mostly on the hands with the head tucked under (land on the back of the neck). On the roll-up hands should be placed on the shins and the student should rise to a standing position.



On the backward roll start from a squat position. During the roll weight should be supported on the hands and the head should not turn to the side. Then hands and arms should push hard to ensure landing on the feet. Good form requires a tucked position throughout the roll. Adequate attention to student safety requires appropriate spotting techniques during all tumbling activities.



RULES

1. Form of each roll is evaluated as shown in the scoring section according to the description given above.
2. Inform the student of his rating and errors after each roll.
3. Two trials of each roll are permitted.

SCORING

The following ratings are made by the instructor:

Log roll

- Unable to perform 0
- Able to perform four consecutive rolls 1
- Able to perform four consecutive rolls deviating less than one foot from a straight line 2

Forward roll

- Unable to perform 0
- Able to roll over with poor form 1
- Good form in getting over but unable to rise to feet without use of hands 2
- Good form throughout 3

Backward roll

- Unable to perform 0
- Able to roll over with poor form 1
- Able to roll over and land on feet 2
- Good form throughout 3

Score is the sum of best trials for each type of roll.

13. Target Throw

EQUIPMENT

An unobstructed solid wall, several regulation softballs (12 inch) and a target. The target consists of four concentric rings with diameters of one, two, three, and four feet respectively. Place scores of four, three, two, and one into smallest to largest circles respectively. The center of the target should be four feet from the floor. Place restraining lines 15 and 20 feet from the wall.

DESCRIPTION

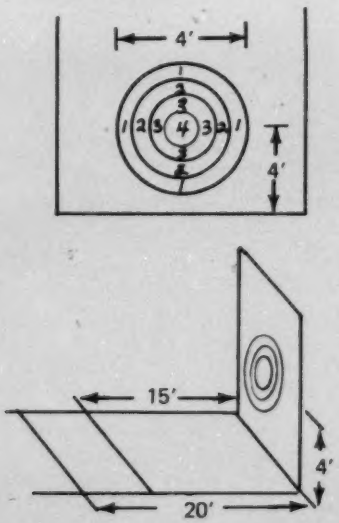
Students nine years old or younger should use the 15 foot line while others should use the 20 foot line. The student is permitted five practice overhand throws followed by five throws which are recorded.

RULES

1. Throws must be made from behind the appropriate restraining line.
2. Throws must be overhand.
3. Each student is permitted five practice throws followed by five throws which are recorded.
4. If the ball lands on a line, score the higher value.

SCORING

Score is sum of the last five throws.



SUGGESTED FORMAT FOR RECORDING FORMS

SCORE CARD

Student Name _____

	Test 1		Test 2	
Date	_____		_____	
Age	_____		_____	
	Score	Percentile	Score	Percentile
Flexed Arm Hang	_____	_____	_____	_____
Situps In 30 Seconds	_____	_____	_____	_____
Standing Long Jump	_____	_____	_____	_____
Softball Throw	_____	_____	_____	_____
50 Yard Dash	_____	_____	_____	_____
300 Yard Run-Walk	_____	_____	_____	_____
Height	_____	_____	_____	_____
Weight	_____	_____	_____	_____
Bob and Reach	_____	_____	_____	_____
Hopping	_____	_____	_____	_____
Skipping	_____	_____	_____	_____
Tumbling	_____	_____	_____	_____
Target Throw	_____	_____	_____	_____

INSTRUCTIONS: Fill in the date, age, and appropriate scores of the student. Record only the best trial for each test. Then refer to the appropriate scoring table in the *MOTOR FITNESS TESTING MANUAL FOR MODERATELY MENTALLY RETARDED.* Find the percentile score for the student's age and enter it in the proper space provided above.

PROFILE RECORD

Name _____

Percentile	Flexed Arm Hang	Situps in 30 Sec.	Long Jump	Softball Throw	50 Yard Dash	300 Yard Dash	Height	Weight	Bob and Reach	Hopping	Skipping	Tumbling	Target Throw
100													
95													
90													
85													
80													
75													
70													
65													
60													
55													
50													
45													
40													
35													
30													
25													
20													
15													
10													
5													

Instructions: Place a mark on each line of the profile chart which corresponds to the student's percentile score for each test. Then connect the marks with straight lines. Use a different colored pencil for separate test administrations so that changes are clearly shown.

ACTIVITY REPORT FORM FOR "THE 30-HOUR CLUB"

Instructions:

As the student participates in physical activities

1) Write the name of the activity in the first column.
2) Fill in one square for each hour of participation, opposite the appropriate activity.
3) Only one square is filled in each column from 1 to 30.

Example:

Type of Activity	1	2	3	4	5	6	7	8	9	10	11
Swimming	■		■				■			■	
Basketball		■									
Jogging				■	■						
Hiking						■					
Overnight Camping								■	■		
Bicycling										■	

ACTIVITY REPORT FOR _____

Type of Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Starting date _____ Completion date _____

Verified by _____

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PERCENTILE SCORING TABLES FOR MALES

FLEXED ARM HANG -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	3.0	8.0	5.0	21.0	13.0	13.0	25.0	26.0	18.0	52.0	26.0	20.8	28.0	39.1	36.0
95		6.0	3.0	8.5	9.5	5.0	10.0	23.0	15.0	22.0	18.0	17.0	20.0	14.0	
90	2.0		2.0	3.8	7.0	3.0	5.1	10.0	8.0	15.0	12.0		13.0	11.0	
85		5.0	1.4	3.0		2.0	4.6	8.0	7.0	10.0	9.9	10.5	11.0		3.0
80	1.6		1.0	2.0	3.8		4.0	7.0	6.4		8.2		5.6	6.0	
75		2.3	0	1.0	1.0	1.6	3.0	3.6	4.0	9.7	6.0	8.0	4.0	4.0	0
70		2.0		.7	0	.9	2.0	3.4	3.0	7.5	5.6	7.4			
65	0	1.9		0		0	1.0		2.0	6.0	3.0	6.0	3.1	3.1	
60		1.0					.1	2.0	1.7	4.4	2.4	5.0	2.0	2.0	
55		0							1.2	4.0	2.0	4.0	1.0		
50								0	1.0		1.2				
45									.5	3.0	.8	0.0			
40									0	2.6	0			1.3	
35										2.5				0	
30										1.3			.5		
25										0			0		
20															
15															
10															
5															
0															
N	9	20	38	41	43	46	60	48	66	42	47	30	21	17	8

SITUPS -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	12	13	17	19	25	18	25	19	23	25	25	21	21	19	17
95		8	13	14	17	15	19	16	18	19	19	16	19	18	
90	9	7	12	12	14	14	14		16		18	15	18	16	12
85		6	10	10	13	13	13		15	18	16		17		
80	7				11	11	12	14	14	17		14	16	11	6
75		5	8		10			13	13	15	13		15		
70		3	6	9	9	10		12		14	12	12	11	10	4
65					8		11	11	12				10		
60	1	2		8	7	9	10		11	13	11	11		8	
55		0	5	7		8	9	9						7	
50	0		4		6	7	8		10	12	10	10	9		
45				5	4	6		8				9		5	
40			3		3		7	7		11	8				0
35					2	4	6	6	9	10	7			4	
30			2	2		2	5	5	8	9	5	8	7		
25			1	0	1	1		4	7		4			3	
20			0				4	2	5	8	3	6	5	0	
15							1	1		7	2	5	2		
10							0		2	5	0		1		
5									0	0		3			
N	10	26	41	47	47	53	70	59	74	48	53	36	25	19	8

LONG JUMP -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	31	38	35	49	53	59	78	69	75	80	79	81	97	69	72
95		28	31	45	46	53	58	60	64	72	72	68	66	63	
90	29	27	26	41	42	50	55	56	60	62	66	57	54	59	35
85		26	25	40	40	42	53	51	57	61	60	55	51	57	
80	16	25		36	38	40	46	48	53	60	56		50	46	
75		24	24	35	36	36	44	42	51	59	54	52			33
70	15	23	23	33	35	32	42	39	49	57	52	48	46	45	
65		22		30	32	31	40	37	48	55	49	46	43	43	31
60	14		21	27	28	28	37		42	52	45		42	40	
55		16	20	26	27			34	41	49	42	41	41	37	
50	10	14		25		26	34	32	38	45	39	39	37		27
45		11	16	24	25	24	32	29	37	44	36	36	36	36	
40	6		15	20	24	22	29	28	35	37	35	35			24
35			14	19	22	21	24	26	32	36	34	33	34	33	
30		7	13	16	19	20	21	24	28	33	33	32		28	
25			12	15	14	17	18	22	23	27	30	30	29	25	15
20	0	4		14	11			20	20	26	26	26	27	22	
15		3	10	8	10	16	15	18	11	20	23	24	24	11	
10		2	2	5	9	14	10	16	7		18	15	15		10
5		0		0	6	7	9	15	0	6	3	10		10	
N	10	25	40	46	47	52	69	59	73	48	52	35	25	19	8

SOFTBALL THROW -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	35	45	41	69	71	95	130	115	168	167	138	135	119	131	118
95		41	36	50	68	78	87	90	104	130	123	101	112	128	
90	28	29		45	50	71	79	82	89	113	114	89	108	113	83
85		28	31	43	44	59	71	77	79	109	111	85	86	112	
80	23		24	38	42	50	65	74	74	90	100	84	85	95	
75		22	22	34	40	45	57	63	69	89	95		78	90	82
70		20	21	32	37	41	56	56	67	85	91	75		83	
65	20			31	33	38	52	55	65	83	89	73	60	64	62
60			20	27		37	49	49	61	78	81	70	57	55	
55	12	16	19	23	31	36	45	46	59	75	70	63	56	52	
50		14	16	21	28		43	40	57	65	59	58	53		38
45		13		19	25	34	40	37	53	62	53	47	42	38	
40		12	13	18	22	30	37	36	51	61	48	45	40	35	34
35	11	11	12	17	20	29	35	33	45	53	46	40			
30			11	15	19	25	30	30	34	48	40	38		32	
25			10			23	24	29	31	42	37	35	37	28	18
20	9	10	9	13	15	20	20	26	27	34	34	34	35	26	
15		7	8	11		17	19		23	32	30	27	27		15
10	6	6	7	10	13	11	16	23	15	24	20	25	21	25	
5		5	5	9	6	9	13	18	11	17	15	11	11	19	
0															
N	9	25	40	45	47	53	68	57	74	45	53	36	24	19	8

50 YARD DASH -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	11.7	10.5	8.2	9.5	8.4	7.1	7.5	8.0	6.8	7.0	7.0	7.8	7.2	7.4	7.2
95		11.3	11.2	10.0	9.2	8.2	9.0	8.5	7.7	7.5	7.6	8.0		8.2	
90	12.5	11.9	11.5	10.3	9.7	9.0	9.2	9.0	8.2	7.8	7.9	8.5	7.4	8.5	8.6
85		12.4	12.0	10.9	10.0	9.8	9.3	9.6	8.5	8.0	8.0	8.7	8.0	9.5	
80	13.2	14.2	12.5	11.5	10.9	10.0	9.6	10.0	9.0	8.1	8.4	8.9			
75		15.0	12.9	11.6	11.1	11.2	9.9	10.1	9.6	8.3	8.8	9.0	9.0		9.0
70	14.1	15.3	13.0	12.0	11.4	11.6		10.8	9.9	8.5	9.0	9.4	9.2	10.1	
65		16.0	13.7	12.4	11.6	11.9	10.2	11.0	10.1	9.2	9.3	9.5	9.4	10.4	11.2
60	15.4	16.3	14.0		12.4	12.4	10.3	11.1	10.2		9.4	9.7	9.6	10.5	
55		16.9	14.1	12.6	12.8	12.6	10.9	11.4	10.4	9.6	9.8	9.8	9.9	10.8	
50	16.6	17.1	14.3	13.1	13.1	13.0	11.0	12.1	10.7	10.0	10.1	10.4	10.3		13.0
45		18.0	14.5	13.3	13.3	13.3	11.5	12.5	11.0	10.3	10.3	10.7			
40	18.1	18.2	15.2	13.5	14.2	14.0	12.0	13.0	11.3	10.5	11.1	11.0	11.4	11.7	15.7
35		19.5	16.4	14.2	14.5	15.0	12.5		11.5	10.9	11.6	11.4	11.9	12.0	
30	20.0	19.8	17.0	14.5	14.8	15.2	13.5	13.4	12.5	11.3	12.2	11.6	12.0	12.5	
25		20.8	17.4	15.1	15.4	16.2	14.5	14.1	14.0	11.8	12.9	11.9	13.1		15.8
20	20.2	22.5	17.6	15.5	16.8	17.1	15.1	14.4	14.2	12.3	13.4	12.2	13.4	13.0	
15		23.2	18.0	17.0	17.0	17.9	15.4	15.2	14.8	12.5		13.1	13.8	14.9	24.0
10	33.8	23.6	19.8	18.2	20.2	20.7	19.2	16.3	16.9	15.0	14.8	13.3	16.1	15.7	
5		27.0	21.7	22.4	25.3	22.3	22.6	22.2	23.8	18.8	15.9	14.0	17.0	18.0	
0															
N	10	25	41	44	47	52	68	57	73	47	53	34	25	18	8

300 YARD RUN -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	101	81	83	67	67	52	50	60	57	58	50	58	52	77	70
95			84	75	73	60	65	68	65	63	59	65			
90		98	99	94	75	71	75	72	71	64	60	68	78	81	
85		127	104	106	85	79	77	79	73	67	63	71			
80	103		116		86	90	84	81	79	70	78	72	80	82	
75		132	118	114	88	91	89	82	81	72	80	75	85		154
70		138	126	117	97	93	91	83	85	78	85	77			
65			128	118	104	100	93	89	87	83		78	90	100	
60	139	148	129	127	109	104	95	94		85	88				
55			138	134	110	112	97	102	94	88	93	82	91	104	
50		151	144	139	127		99	112	102	91	100	85			242
45			149	145	134	117	102	114	105	95	105	93	110	105	
40	150	156	154		142	124	103	120	110	101	107	100			
35		165		152	144	126	107	127	116	109	109	116	124	114	
30			155	154	145	139	118	135		125	110	131			
25		179	156	163	146	146	125	136	120	128	111	140	126		274
20	185		160		158	154	136		147	130	114			190	
15		187		169	169	174	141	153	150	137	120	146			
10		215	166	183	173	184	155	181	164	198	135	160	162	202	
5			200	209	180	237	200	185	187	222	139	179			
N	5	12	26	29	32	28	47	31	46	33	34	21	11	9	4

HEIGHT -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	52.00	54.00	64.50	59.00	59.75	67.75	70.50	68.75	71.50	73.25	76.00	72.00	76.50	71.00	74.25
95		52.50	55.25	55.25	58.00	61.75	65.50	67.50	70.25	70.75	70.75	71.00	73.00	70.00	
90	47.75	52.00	54.50	53.50	57.50	60.50	63.75	66.25	68.00	69.25	70.00	69.25	70.00	68.75	73.75
85		51.25	52.50	52.50	56.00	59.25	62.00	65.00	66.75	68.75	69.25	69.00		65.25	
80	47.50	51.00	52.00	52.00		58.75	61.75	63.50	66.25	67.50	68.25	68.50	69.50		
75		50.00	51.50	51.50	55.50	58.00	60.00	63.00	65.25	67.25	67.25	68.25			66.25
70		49.00	51.00	51.25	55.25	57.00	59.25	62.50	64.50	67.00	66.75	67.75	69.00	65.00	
65		48.50	50.75	50.75	55.00	56.75	59.00	61.75	64.00	65.75	66.50	67.25	68.25		65.75
60		48.25	50.25	50.50	54.50	55.50	58.50	61.00	63.50	65.25	66.25	67.00	68.00	64.00	
55	47.25		50.00	50.00	54.25	55.25	58.25	60.75	63.25	65.00	65.50	66.00	67.50		
50		47.75	49.50		54.00	54.75	57.75	60.00	62.50	64.50	64.75	65.50	66.00		63.00
45	46.00	46.00	49.00	49.50	53.50	54.00	57.00	59.75	62.00	64.00	64.25	64.50	65.50	63.00	
40			48.50	49.00	53.00		56.75	59.25	61.75	63.50	63.75	63.50	65.25		62.00
35	45.00	45.50	48.00	48.75	52.75	53.75	56.50	58.75	61.00	62.25	63.25		64.50	62.75	
30			47.50	48.50	52.00	53.00	56.25	58.00	60.25	62.00	62.25	63.25	64.25	62.50	
25		45.00	47.00	48.00	50.75	52.50	55.50	57.50	59.75	61.50	61.75	63.00	64.00		61.75
20	42.00		46.50		50.50	52.25	55.25	57.00	59.50	59.50		62.50	63.00	62.25	
15		43.00	46.00	47.00	50.00	51.50	54.25	56.25	58.50	59.00	61.00	62.25	62.75	60.00	61.50
10	40.25	42.75	45.50	46.50	49.00	49.50	53.25	55.00	57.00	58.50	59.50	61.00	60.25		
5		41.00	44.00	45.50	48.25	49.00	52.50	52.25	54.25	57.50	56.00	58.75	59.00	58.75	
0															
N	9	26	41	46	46	51	68	59	73	48	52	36	24	19	8

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WEIGHT -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	83	75	161	111	131	146	201	215	205	240	253	292	220	298	238
95		74	103	98	107	123	161	190	176	186	208	196	214	250	
90	61	65	89	95	98	118	139	162	165	160	194	187	203	226	223
85			77	76	92	112	128	141	157	155	181	180	190	216	
80	58	64	71	75	91	106	119	138	144	146	178	172	187	184	
75		60		74	90	102	110	135	142	144	159	160	180	163	180
70			68	72	87	100	107	123	133	139	154	152	175	160	
65	54	59	67	68	84	96	103	117	126	134	147	150	162	157	
60		57	63	67	76	95	98	113	122	131	138	148	157	156	
55	53		60		75	87	92	110	117	130	136	144	154		
50		53	58	63	74	84	91	105	114	127	128	140	140	154	172
45	51	51		58	73	81	87	102	112	125	126	137	138	143	
40		50	52	56	70		84	101	109	120	120	133	135	137	154
35	49		50	54	67	76		94	107		115	130	134	132	
30						74	80	93	101	111	114	124	132	131	
25		47	49	52	65		76	90	96	106	110	123	130	130	118
20	45	46	48	50	63	71	73	86	93	105	103	122	128		
15		44	46	49	62	66	70	82	88	101	102	121	120	125	114
10	36	36	43	46	58	64	68	77	78	93	97	116	107	118	
5		31	40	45	52	55	58	72	72	80	91	104	97	104	
0															
N	9	26	41	44	45	51	68	58	73	48	52	36	24	19	8

BOB AND REACH -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	6.5	12.0	6.0	8.5	7.0	7.0	12.0	7.0	9.0	7.0	6.5	8.0	8.5	12.0	9.0
95		5.0	5.0	4.5	3.0	5.0	6.0	5.5	6.0	6.0	4.5	6.0	7.0	7.0	
90	4.0	4.0		4.0			4.5	4.0	4.0	4.0	4.0		5.0	4.0	8.5
85		3.5	3.5	3.0		4.5		3.5		3.0	3.0	5.5			
80	3.0		3.0	2.0	2.5	3.0	3.0	3.0	2.5	2.5	2.0	4.0	4.0	3.0	
75		3.0		1.5	2.0	2.5	2.5	2.5	1.0			3.0			7.0
70		2.5	2.5	1.0	1.0	1.5	1.5	2.0		1.5	1.0		3.0	2.0	
65	2.5	2.0	2.0				0.5	1.0	0.5	1.0			2.0		6.0
60			1.0			1.0	0.0	0.5			0.5	2.0	0.5		
55			0.5	0.5	0.5		- 0.5	0.0	0.0	0.0	0.0		0.0	1.0	
50		1.0	0.0	0.0	0.0	0.0	- 1.5			- 1.5	- 1.0		- 0.5		0.0
45	2.0								- 1.0	- 2.0	- 1.5	0.0	- 1.0	0.0	
40		0.5	- 0.5		- 0.5		- 3.0	- 2.0	- 1.5		- 2.0	- 0.5			- 2.0
35	0.5	0.0	- 1.0	- 1.0	- 2.0	- 1.0	- 4.0	- 2.5	- 3.0	- 3.0	- 3.0	- 2.0			
30			- 1.5	- 1.5		- 1.5		- 3.0	- 4.5	- 4.0	- 4.0	- 3.0	- 2.0	- 0.5	
25		- 1.5	- 2.0	- 2.0	- 2.5	- 2.5	- 5.0	- 3.5	- 6.0	- 5.5	- 5.0	- 5.0	- 3.0	- 1.5	- 6.0
20	- 2.0	- 2.5	- 3.0	- 2.5	- 4.0	- 4.0	- 6.0	- 4.0	- 6.5	- 6.0	- 5.5	- 6.0	- 5.0	- 6.0	
15		- 3.0	- 4.0	- 3.0	- 4.5	- 5.0	- 7.0	- 5.0	- 8.0	- 6.5	- 7.0	- 7.5	- 7.0	- 8.0	-11.0
10	- 2.5	- 4.0	- 5.0	- 4.0	- 6.5	- 7.0	- 7.5	- 6.5	-10.0	- 7.0	- 8.0	- 8.0	- 8.0		
5		-10.0	- 9.0	- 5.5	- 7.0	- 8.0	-10.0	- 8.0	-11.0	-10.0	-10.5	-10.0	-10.0	-10.0	
0															
N	9	26	40	44	46	52	69	59	72	47	53	36	25	19	8

HOPPING -- MALES

%	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
95															
90															
85		4													
80															
75			5												
70	5	3													
65			4												
60		2													
55			3												
50	3				5										
45				5											
40	1	1		4	4	4									
35						3	5		5						4
30	0		2	3	3				4				5	5	
25							4	5							2
20			1	2			3	3	3		5	5	4		
15		0	0	0	2	1		2	2	3	3	4	3	3	0
10					0	0	2		0	0	2	2	2	1	
5							0	0			0	1	0	0	
N	10	26	41	46	47	53	70	59	74	48	53	35	25	19	8

SKIPPING -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
95															
90	2														
85		2													2
80															
75		1													1
70	1		2		2									2	
65				2											
60			1			2								1	
55							2				2	2			
50		0		1	1		1	2	2				2		0
45						1				2		1			
40	0							1					1		
35			0	0					1		1				
30						0				1				0	
25								0							
20					0		0		0	0			0		
15											0	0			
10															
5															
0															
N	10	26	41	46	46	53	69	59	74	48	53	35	25	15	8

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TUMBLING -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	5	7	7	8	8	8	8	8	8	8	8	8	8	8	8
95		5		7	7							7			
90	4	4	5	6		6	7	7				6		6	
85					6				7	7	7		6	5	4
80			4	5	5		6	6			6	5			
75		3							6	6			5		3
70						5	5	5		5				4	
65					4						5				
60	3			4					5			4		3	2
55						4		4		4		3			
50			3				4				4		4		
45									4						
40	2				3			3							
35				3							3				
30			2			3	3			3			3		
25		2			2			2	3		2				
20									2						
15				2		2	2					2		2	
10	1	1			1	1				2	1				1
5		0	1	1				1	1	1		1	2		
N	10	26	41	47	46	53	70	59	74	48	53	36	25	19	8

TARGET THROW -- MALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	15	12	13	15	14	15	15	19	17	18	16	18	17	17	16
95		10	11	14	10	13	14	14	15	16		16	16	15	
90	10	7	10	12	9	10	12	13		15	15	14	14	13	
85		5	9				11				14	13		10	
80	2		8	11	8	8	10	12	13	14		12	13		
75		4	7			7		11	12	12	13	11			15
70	1	3		9	6		8	10		11	12	10		9	
65			5	8		6		9	11	10			11		
60	0			6	5		7	8			11	9			12
55		2	3		4			7	9		10	8			
50		0	2	5	2	5	6	6	8	9			10	8	
45				4		4					9	7		7	
40			1		0		5		7	8	8		9		
35			0	2			4		5	7	7	6			
30				1		2		5	4		6	5	8	6	
25								4			5		7		11
20				0		0		3	3	5	3	4	6	4	
15								1	2	0	2	3	5	3	
10							1	0	0		0	2	0	0	0
5							0								
N	10	25	41	47	46	53	68	57	74	48	53	35	25	18	8

PERCENTILE SCORING TABLES FOR FEMALES

FLEXED ARM HANG -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	0	8	4.5	7	19	6	6.2	13	9	27	10.0	8.3	7	11.0	0
95		2	3	4	2.3	3.5	4.9	7.8	5	3	4.6	3.2	5	1.0	
90		0	1	2.5	2	2	3	6	2	1	4.0	1		0	
85				2	1	1.8	2.4	3	0	0		0	3		
80			0	1.8	0	1.4	2	2			2.0				
75				1		1		1			1.4		1		
70				.5		.3	1.3	0					0		
65				0		0	1				0				
60							.5								
55							0								
50															
45															
40															
35															
30															
25															
20															
15															
10															
5															
0															
N	8	23	27	30	32	38	36	49	53	39	34	26	20	25	5

SITUPS -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	10	10	16	13	16	16	15	15	14	17	16	15	15	16	6
95			10	12	13	13	13	13	12	15	13	14		12	
90	4	8	7	11	12	12		12	11	14		11	13	11	
85		7		9	11	9	12	11		13	12	10	12		
80			3	8	10			10	10	12				10	
75	1	6			9	8	11			11			11	9	
70		5	2	7							10	9			3
65	0	4		5	8	6	9	9	9	10		8	10	8	
60		3	1	4	7				8	9	9		9	7	
55		1	0	3	6	5	7	8		7		7		6	0
50		0				4			7	6	8		7		
45							6	6	6		7	5			
40				1	4	3	4	5	5	5		3	6	5	
35				0	3	1	3	4			2	2	5		
30					2	0	2		4	2		1	4		
25					0		1	0		1		0	1	4	
20							0		2	0			0	3	
15									0		0				
10														2	
5															
0															
N	8	24	34	32	38	41	40	53	59	41	37	32	26	26	7

LONG JUMP -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	24	30	38	48	48	48	60	61	66	65	56	50	58	60	29
95		29	32	37	44	38	52	50	52	47	44	43	57	47	
90		23	30	36	41	37	42	47	46	42	43	40	45	40	
85	19	20	26	32	34		40	44	43	40	40	38	44	39	25
80		19	23	28	32	35	38	42	38	39	38	36	42	37	
75	16	15	22		29	33	35	37	36	37	37	34	39	36	
70		14		26	28	31	33	32	34	36	34	33	37	33	24
65		13	17	24		30	29	31	33	35	33	32		32	
60	14		16	22	27	27	27	28	31	32	32	29			
55		12	14	19	24	26	26			30	30	28	35	30	15
50	12	11	13	17	22	24	24	26	27	27	28	27	34	28	
45		10		15	21	21		24	26	25	26	22	33		
40		8	12	12	17	20	21	23	25	24	24	21	28	27	13
35					15	16	19	22	24	21	22	17		26	
30		7	11	10		15	15	21	22	20	21	16	27		
25	3	4	8	9	14	13	13	17	19	18		10	21	24	
20		2	7	6	10	12	10	13	16	14	18	9	20	20	
15		0	5	3	4	8		12	10	12	16	7	19	18	10
10	2		4	0	0	5	5	10	6	6	15	6	14	14	
5			2			0		3	0		7	0	0	0	
0			0							0					
N	8	25	33	33	37	41	40	52	61	41	36	30	26	26	7

SOFTBALL THROW -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	19	35	54	36	69	72	72	72	64	67	89	69	115	60	34
95		26	17	32	53	58	60	52	59	59	69	62	86	58	
90	15	21	16	31	35	50	49	49	56	54	54	42	61	48	
85		20		27	32	37	45	44	50		51		54	47	31
80		18	15	25	30	34	41	42	47	44	49	40	53	45	
75	14	17		20	25	29	34	40	44	38	47	37	50	40	
70		16	14	18	23	28	32	36	40	35	45	36	42	38	18
65	13	15	13	17		27	31	34	37	34	40	33	39	35	
60		14	12	16	22	26	29	32	34	33	35	31	37	34	
55		13		15	21		28	29	32		31	29	35		
50	9	11			20	25		28	31	30	29	25	34	31	
45			11		18	24	25	25	29		27	24			13
40	7	10	10	13		23	24	24	28	28	26	22	30	27	
35			9		16	19	23	23	27	26	24	20		26	
30		9		12	15	18	20	22	23	23	21	16	29		12
25			8	10	13	16	17	18	22	21	20	15	26	22	
20		5	7		11	15	15	17	20	20		14	23		
15	6	4	6	9	10		11	14	16	16	17	13		20	11
10			5		9	11	9	13	13	13	15	10	19	19	
5		2		8	7	8	7		7	12	12	8	16	12	
0										9					
N	8	25	34	31	39	44	40	53	61	41	38	31	26	26	7

50 YARD DASH -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	13.6	11.6	11.0	8.5	8.5	8.8	8.6	8.1	9.5	7.9	8.4	8.5	8.3	9.9	14.3
95		12.8	12.5	11.5	9.8	9.0	9.0	9.0	9.6	9.1	8.9	10.0	9.4	10.3	
90	15	13.9	13.0	11.6	10.5	9.9	9.8	9.3	10.0	9.5	9.6	10.4	10.0	11.3	
85		14.0	14.3	12.1	11.1	10.5	10.2	10.7	10.5	9.9	10.1		10.1	11.4	16.1
80		14.1	15.1	12.5	11.8	10.9		11.4	10.6	10.2	10.3	10.5	10.2	12.0	
75	16	14.2	15.3	13.1	13.0	11.3	10.8	11.5	11.2	10.4	10.9	11.0	10.6	12.1	
70		14.5	16.3	13.6	13.1	12.0	11.3	12.0	11.7	10.9	11.0	11.3	10.8		
65	17.9	15.1	16.5	13.7	13.5	12.5		12.1	12.1	11.2	11.4		11.2	12.4	16.8
60		16.4	16.6	14.0	13.8	12.6	11.9	12.5	12.2	11.4	11.6	11.6	11.4	12.6	
55		17.3	17.0	14.9	14.4	13.0	12.2	12.7	12.5	11.9	12.1	12.1	12.1	12.7	
50	18.2	17.8	17.8	15.6	14.8	13.4	14.0	13.0	13.0	12.2		12.4	12.8		19.2
45		18.1	19.0	16.2	15.0	13.9	14.2	13.3	13.4	12.7	12.3	12.6	13.0	13.4	
40	20.7	18.2	19.2	16.3	15.2	14.0	15.0	13.6	13.8	13.0	12.6	13.5	14.0	13.6	
35		19.1	19.5	16.7	16.0	14.1	15.2	14.0	14.4	13.5	13.4	14.1		13.9	19.3
30		22.5	21.2	17.0	16.9	15.2	15.8	14.7	14.6	13.8	15.2	15.6	14.2	14.1	
25	22.3	24.4	22.9		17.4	15.3	16.8	15.1	15.0	14.2	15.5	15.8	15.4	15.6	
20		24.6	24.2	21.2	17.5	17.1	17.2	16.3	16.5	14.5	15.7	17.8	16.5	16.0	
15	37.6	24.7	24.9	21.9	18.5	23.3	19.6	17.5	17.5	14.6	17.0	18.6	17.0	16.5	32.4
10		30.2	26.5	26.2	21.6	24.4	21.5	20.6	20.0	17.0	24.3	22.0	17.4	20.6	
5		44.3	26.9	28.0	23.0	30.3	25.0	22.6	21.3	21.7	26.6	32.5	23.6	55.0	
0															
N	8	24	33	32	38	43	39	52	61	41	38	31	26	26	6

300 YARD RUN -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	117	92	109	85	73	73	60	56	81	81	76	72	75	90	125
95			110	87	78	75	92	71	82	83	77	74	88	94	
90		103	121	106	82	81	93	78	93	86	80	81			
85	147	125	131	117	93	95	95	87	95	90	100	85		111	138
80			138	119	102	106	96	92	96	109	104		98	112	
75			151	120	107	111	100	98	98	115	108				
70			152	125	109	112	101	101	105	119		99	100		
65	150		155	130	114		105	104	116	122	109	105	106	125	145
60		133	165	136	119	117	111	106	117	125	115	106			
55			166	137	124	123	126	115			117	112	109		
50	188	144		138	129	125	131	117	125	128	120	114	111		153
45			171	143	130	130	132	124	134	137	124	119	117		
40		151	173	149		133	136	127	137	140	127	127			
35	199	178	176	159	136	140	138	129	138		130	137	142	146	166
30			186	183	150	162	145	133	152	149	132	157	145	152	
25		202	190	190	155	164	157	145	158		135				
20			206	206	157	169	162	154	170	156	156	160	151	174	
15	220	225	207	207	170		163	160	188	159	158	177		178	174
10		230	210	220	205	214	215	165	216	161	193	240			
5			220	232	240	228	242	188	275	201	380	270	180	180	
0															
N	6	12	19	24	23	28	21	26	31	23	24	18	14	14	6

HEIGHT -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	46.00	51.25	58.50	57.25	59.00	64.00	65.50	68.00	68.50	66.50	68.25	68.75	67.25	70.00	67.50
95		51.00	52.00	56.50	58.00	61.25	63.50	65.00	66.75	65.00	67.00	64.25	67.00	65.50	
90	44.75	50.50	50.50	54.75	57.50	59.50	61.50	64.50	65.25	64.50	66.25		65.00	64.25	
85		50.25			56.50	59.00	61.00	63.50	64.75	63.50	66.00	62.50		64.00	65.50
80		49.75	50.25	53.75	56.25	58.75	59.50	62.00	64.00	62.75	64.25		64.25	63.75	
75	43.50	49.50	49.50	53.50	55.00	58.00	59.25	61.00	63.75	62.00	64.00		63.75	63.00	
70		49.00	49.00	53.00	54.50	57.00	59.00	60.75	63.00	61.50	63.75	61.50	63.50		65.25
65		48.00	48.25		54.25	56.75	58.50	60.00	62.50	61.25	63.50	61.00	63.25	62.25	
60			48.00	52.50	54.00	56.00	58.25	59.75	61.00	61.00	62.50	60.50	62.75	61.75	
55		46.75	47.75	50.75		55.00		59.00	60.25	60.75	60.75	60.00		61.00	63.00
50	42.75	45.75	47.50	50.50	53.00	54.25	56.00	58.25	60.00	60.50	60.50	59.75			
45		45.50			52.50	54.00	55.50		59.25	60.00		59.50	62.00	60.75	60.00
40	41.75		46.25	49.25	52.00	53.50	54.50	57.25	59.00	59.75	60.00	58.00	60.00	59.00	
35		45.00		48.50	51.25	53.00		56.75	58.25			57.75	59.75	57.25	
30		44.50	45.25		50.75	52.75	54.00	56.25	57.75	59.00	58.25	57.00	59.00	57.00	58.00
25	41.50	44.00	45.00		49.75	52.25	53.75	55.50		57.50	57.50	56.00	58.75	56.25	
20		43.50	44.00	48.00	49.50	51.50	52.50	55.00	57.00	57.00	56.50	55.50	56.75	56.00	
15	39.75	41.00	43.00	47.00	48.00	51.00	51.75	54.25	56.50	56.50	55.75	55.25	56.50	55.75	57.50
10			42.50	43.75		49.25	51.00	53.75	56.00	56.25	55.50	54.00	56.00	54.75	
5		36.25	42.00	42.50	47.00	47.75	48.25	47.75	53.25	55.00	55.25	53.50	53.50	53.50	
0															
N	8	22	33	33	38	43	37	50	60	40	36	31	26	26	7

WEIGHT -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	73	73	98	149	127	200	154	223	298	187	225	171	215	203	214
95		72	95	94	97	137	143	158	205	161	168	163	210	187	
90	48	65	64	93	90	128	129	145	182	159	155	159	189	165	
85		63		84	87	107	122	139	164	152	149	149	180	161	206
80			61	79	85	102	111	123	157	148	148	141	177	155	
75	45	59	60	76	80	99	106	121	151	135	144	134	165	138	
70		57		73	78	95	104	119	142	130	138	130	164	130	162
65		54	58	71	76	85	95	115	136	122	128	125	163	129	
60				67	75	83	93	113	126	120	126	120	159	128	
55		53	55	66	71		91	110	123		122	113	156	126	131
50	44	52	54	65	70	82	90	108	117	119	120	110	153	124	
45		50		64	69	80	89	103	114	118	119		152	122	123
40	42	49	50	63	65	78	80	96	109	114	115	104	131	119	
35		48	49	62	64	75	79	91	104	112			126		
30		46	48	60	60	70	77	89	102	111	110	103	119	110	109
25	40	42	45		57	69	76	88	101	107	106	102	110	102	
20		41	44	56	54	64	72	85	98	102	103		99	100	
15	38	40		55	50	63	68	79	94	95	100	98		95	78
10		37	40	43	46	56	67	70	89	93	95	97	96	94	
5		28	38	35	43	50	55	59	82	88	82	96	80	77	
0															
N	8	22	33	32	38	43	37	50	60	40	37	31	26	26	7

BOB AND REACH -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	5.5	6	6.5	7	6.5	6	8	12	8	9	10.5	8	6	10	12
95		4	5	5	5.5	4	6.5	6.5	6	6	6	5.5		8.5	
90			4.5	4.5	4	3.0	6	5.5	5	5			4	7.5	
85			3.5	4	3	2.5	4	5	4		5	3		7	6
80		3.5	2.5	3.5	2.5	2	3.5	4	3	4	4.5		3	6.5	
75	5	2.5	2	3	2		3	3.5	2	3.5	3.5	2	2	6	
70		2					2	2	1	2.5	3	1	1		0
65	2	1.5			1.5			1.5		2	2			4	
60		1	1.5	1	1	1.5	1	1	0.5	1			.5	3	
55		0	1	.5		1		.5	0	.5	0	0	0	2.5	
50			.5	0			.5								
45					.5	.5	0		- 0.5		- .5			2	
40		- 1	0	- .5	.0	0	- 1	- .5	- 1.5	- 1	- 1	- 2.5		1	- .5
35	1	- 1.5		- 1		- 1	- 1.5		- 2	- 1.5	- 3	- 3			
30		- 2.5		- 2.5	- .5	- 2	- 2.5	- 2	- 3	- 3	- 4	- 4	- 1.5	.5	- 4
25		- 3	- 1.5	- 3	- 1	- 3	- 3	- 3			- 4.5	- 5	- 3	0	
20			- 2		- 2.0	- 3.5		- 4	- 4	- 4.5	- 6.0	- 7	- 3.5	- 1	
15	.5	- 4	- 2.5	- 4	- 3	- 5	- 4	- 5	- 5	- 5	- 6.5	- 9.5	- 4		- 5
10		- 5.5	- 4.5		- 3.5	- 6		- 6	- 6.5	- 6.5	- 7	-12	- 5.5	- 4	
5		- 7	- 7	- 5.5	- 6	-10	- 8	- 7	-10	- 7.5	-10	-15		-12	
0								-11							
N	8	25	34	31	38	43	39	53	59	40	38	31	26	26	7

65

HOPPING -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
95															
90															
85															3
80			5												
75	4	5	4												
70		4	3												
65	1	3													
60			2	5											
55															0
50	0	2													
45			1	4											
40		1			4	5		5		5					
35				3			3	4		4					
30		0	0			4			5		5	5			
25					3	3	1	3	4		4	3	5		
20				2	1	2					3	0	3	4	
15				1		0	0	1	2	3	2			3	
10				0				0	1	1	0		0	2	
5										0					
0															
N	8	25	34	33	38	42	40	53	61	41	37	32	26	26	7

SKIPPING -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2
95															
90	2														
85			2												
80		1													1
75	1		1												
70															
65				2											
60			0				2								
55					2										
50	0	0		1		2	1	2							0
45										2	2				
40						1			2	1		2		2	
35					1		0	1			1		1		
30									1			1			
25					0									1	
20				0		0		0	0		0	0			
15										0			0		
10														0	
5															
0															
N	8	24	34	32	38	42	40	52	61	41	37	32	26	26	7

TUMBLING -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	4	6	8	8	8	8	8	8	8	8	8	8	8	7	4
95			6	7	6	7	7		7			7		6	
90		4	5	5			6	7		6	6	6	7	5	
85			4		5			6	6	5	5	5	6	4	
80						6	5	5	5						
75	3	3									4		5		
70				4		5						4			
65					4	4	4			4					3
60			3						4		3	3	4		
55								4		3				3	
50				3									3		
45															
40					3		3	3	3	2	2				2
35						3						2			
30		2							2				2		
25	2		2				2							2	
20				2	2			2							
15						2	1					1			1
10		0							1		1		1	1	
5			1	1	1		0	1	0	1					
0						0		0							
N	8	25	34	33	38	43	40	53	59	41	37	31	25	26	6

TARGET THROW -- FEMALES

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
100	2	6	12	15	16	12	15	16	13	14	16	16	17	15	7
95			5	10	11	7	13	12	11	11	13	14	16	13	
90	0		4	9	7	6	10	10	10	10	11	12		10	
85			3	7		5	8	9	9	8	10		13	8	2
80		4	0	6	4							8			
75				5	3	3	6	7	8	7	9	7	10	7	
70		3		4		2		6	7			6			0
65				3	2	1	5	5	6	5	8	5		6	
60		2			0	0	4	4	5		6		9		
55		0									5			5	
50				2			3		4	3		4			
45				1				2	3		4		7	4	
40								1		2		2		2	
35							2	0	2		2		6		
30									1	1	1	1			
25									0	0	0	0	5	0	
20													4		
15													3		
10													0		
5															
0															
N	8	25	34	32	38	44	39	53	61	41	38	31	26	26	7

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